REMARKS

Claim Rejections - 35 USC § 102

Claims 1, 2, 10, 13 and 15 are rejected under 35 USC 102(b) as being anticipated by EP 1205780 (Stenzel). This rejection is overcome by amendment of claims 1, 10, and 13 to include limitations not found in Stenzel.

Claim 1, as amended, now requires a plurality of filters each accommodated by a respective receiving area of the magazine, and an electronically operated shutter for selectively blocking the optical path of the microscope based on data read by the reader unit, wherein the shutter can only be opened once a correct filter is in the optical path. The additional limitations were previously found in claims 4, 7, and 17, which are rejected on obviousness grounds and which have now been canceled. Thus, amended claim 1 is not anticipated by Stenzel.

Claim 2 depends from claim 1, and is novel over Stenzel for the same reasons claim 1 is novel.

Claim 10 is believed to be novel over Stenzel because Stenzel teaches an objective magazine rather than a filter magazine, and the transponders of Stenzel do not have a filter associated therewith, nor do they store data indicating characteristics of a filter associated therewith.

Method claim 13 has been amended in a manner analogous to claim 1. Accordingly, claim 13 now includes the steps of providing an electronically operated shutter for selectively blocking the optical path, and conducting the investigation wherein the shutter is operated based on the read data in that the shutter can only be opened once a correct filter is in the optical path.

Claim 15 depends from claim 13, and is novel over Stenzel for the same reasons claim 1 is novel.

The non-obviousness of amended claims 1, 10, and 13, as well as dependent claims 2 and 15, will be discussed below.

Removal of the rejection under 35 USC 102 is respectfully sought.

Claim Rejections - 35 USC § 103

The rejection of claims 3 and 12 as being unpatentable over Stenzel is moot in view of the cancellation of these claims. Therefore, removal of the rejection is respectfully requested.

Claims 1-21 are rejected under 35 USC 103(a) as being unpatentable over US 5009488 (Fay et al.) in view of Stenzel. The rejection, as it applies to remaining claims 1, 2, 5, 6, 8-10, 13-16, and 18-21 is overcome for the reasons presented below.

Fay et al. discloses a microscope having a filter magazine (filter disc 54) having a plurality of receiving areas for accommodating filter elements 58. Filter disc 54 is rotated by a stepper motor 62 to selectively position a chosen filter element 58 in an optical path of the microscope. A set of three optically coded marks 74 is provided on filter disc 54 in association with each of the filter elements 58. The marks are detected by a set of three photodetectors 76, whereby it is possible to precisely determine that a filter is positioned in the optical axis and to identify that filter (see col. 4, lines 13-18). Furthermore, an electrically controlled shutter 77 is provided for blocking the optical path.

Operation of the system of Fay et al. is described with respect to Fig. 7 and the corresponding text at col. 4, line 44 - col. 5, line 21. A filter controller 104 determines the present position of the filter disc 54 on the basis of the outputs of the photodetectors 76. The filter controller 104 then determines the shortest path to the desired filter and drives the stepper motor 62 in the proper rotational direction. The filter controller stops the stepper motor 62 in response to outputs from the photodetectors 76 when the desired filter is properly positioned in the optical path, and then returns an acknowledgment signal to the CPU 106. It is the CPU 106 which controls the shutter 77 and a focusing motor 44. Under control of the CPU 106, signals from a camera 30 are received and stored in a memory 109 for processing.

Fay et al. lacks disclosure of transponders associated with the filter elements 58 and a reader unit for reading the stored data of a transponder associated with a filter positioned in the optical path. Furthermore, the shutter 77 is not operated based on read transponder data in a way that the shutter can only be opened once a correct filter is in the optical path, as claimed.

Fay et al. suffers from various drawbacks. For example, the use of optically coded marks 74 identified by a set of three photodetectors 76 reduces the possible number of different filters. Also, the use of optically coded marks requires that the corresponding filter characteristic data are entered in a database in order to identify the filter that is associated with a particular optically coded mark. This leads to a disadvantage described at paragraph [0006] of the specification, namely that updating of the database must always be checked, particularly if there are any changes in the filter characteristics, to prevent mix-ups. Since transponders can directly store filter data, in the present invention the number of filters is not limited and a mix-up of filters is prevented. Therefore, under the present invention, safety requirements of microscope investigations, particularly with fluorescence microscopes, can be met. Unlike the optically coded marks of Fay et al., transponders do not need to have intervisibility with a reader unit and it is possible to transmit data through different materials, which allows the transponders to be sealed much more easily and effectively than optically coded marks.

A further advantage of transponders over optically coded marks is the ability to write and store data into transponders, as discussed at paragraphs [0018] and [0019] of the

present specification. Various data related to an investigation may be stored and later be statistically evaluated, for example to determine the life of the filters or the number of investigations carried out on a particular preparation. This cannot be achieved using optically coded marks as taught by Fay et al..

Yet another advantage of transponders over optically coded marks is described at paragraph [0022] of the specification. In particular, the filter data read from the transponder may be encrypted as an additional safety measure to prevent counterfeiting and imitation of filters which may not meet the required safety levels.

The teachings of Stenzel, when combined with those of Fay et al., do not lead to the claimed invention. Stenzel discloses a microscope and a method of carrying out investigations with such microscope. The microscope comprises an objective lens turret 1 for receiving objectives 2. A required objective can be placed in the optical path 5 of the microscope by rotating the turret 1. A respective transponder 6 is associated with each of the objectives 2, and a reader unit 7 mounted on the microscope stand receives data from the transponders 6. So, Stenzel does not suggest associating transponders with filters, only with objectives, and the reader unit of Stenzel does not read stored data of a transponder associated with a filter. Stenzel is silent as to "an electronically operated shutter for selectively blocking said optical path, said shutter being operated based on said data read by said reader unit, wherein said shutter can only be opened once a correct filter is in said optical path." One skilled in the art at the time of the invention, reading both Fay et al. and Stenzel, might have replaced optically coded marks of Fay et al. with transponders to store a filter identification code and provide for position detection, but it would not have been obvious to store filter characteristic data directly in the transponder or to control the shutter as claimed. As discussed at paragraph [0033], the filter data read from the transponder is checked against filter data in a database. This step confirms the correct filter for the chosen investigation is in the optical path before the shutter is enabled. In Fay et al., if the actual characteristics of the filter do not match what is expected from the filter identification code, the shutter is nevertheless enabled and safety may be compromised.

In the context of the present invention, it must be remembered that filters represent optional accessories in microscopic investigations. Usually, filters of different manufacturers are used. In fluorescence microscopy it is crucial to use original filters of known characteristics in order to protect the user and/or the sample. The present invention allows a safe and automatic microscope operation. Only if the correct filter is in the optical path, an electronically operated shutter can be opened. Thus, the invention allows specific safety requirements to be met. It is not the object of the present invention to optimize a measuring system by adaptation of its components like Stenzel describes at col. 1, paragraph [0003]. The illumination intensity and the position of the sample stage are dependent on the respective objective placed in the optical path. The present invention, however, enables or disables an investigation depending on whether the correct filter is placed in the optical path.

Based on the comments above, independent claims 1, 10, and 13 as amended, and independent claims 20 and 21 as originally filed, are respectfully considered to be patentable over the combination of Fay et al. and Stenzel. Favorable reconsideration of these claims, as well as claims depending therefrom, is kindly requested.

Conclusion

The present application is now thought to be in a condition for allowance. If the Examiner has any questions, or the attorneys for applicant can assist in any way, the undersigned attorney may be contacted at the number provided below.

Respectfully submitted,

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By _____
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GLS/
Enclosures: Petition for One-Month Extension of Time (in duplicate)
Fee Transmittal
Check in the amount of $120.00

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